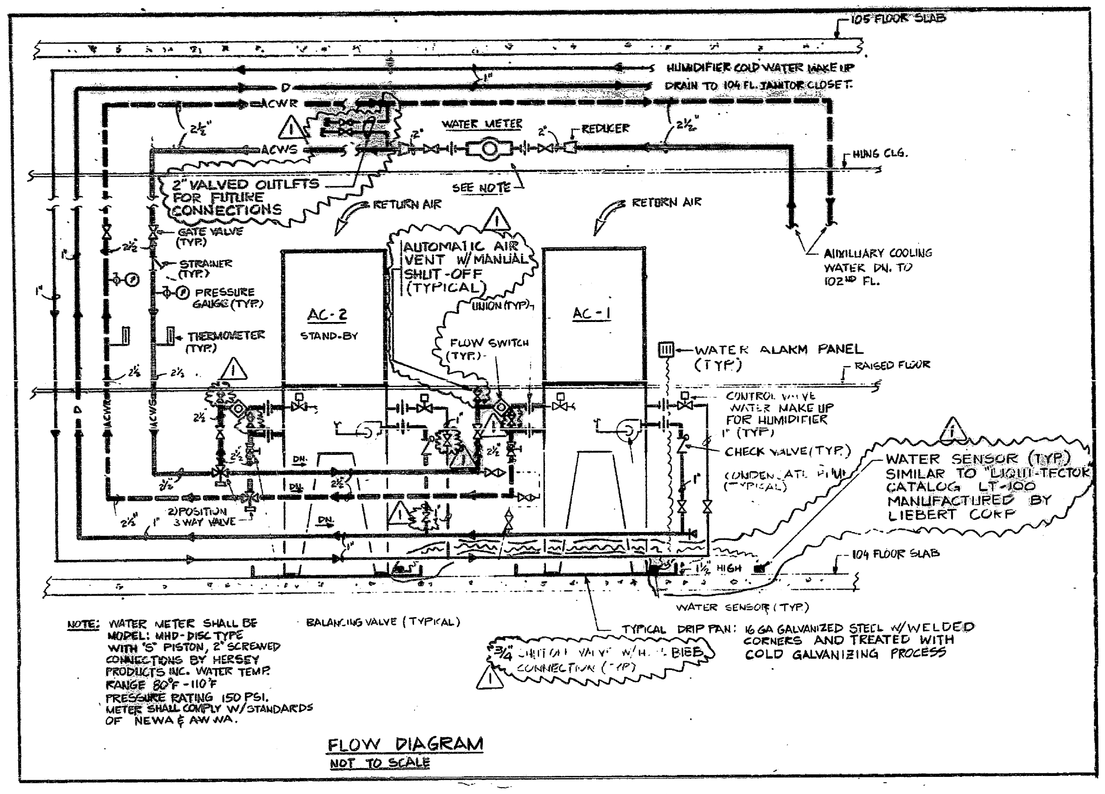
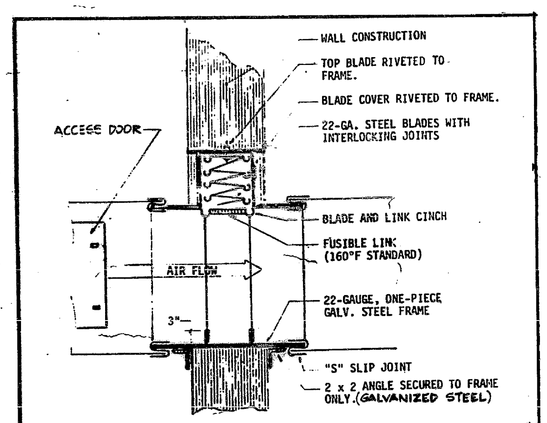


NOTE: WATER METER SHALL BE MODEL: MMD-DISC TYPE WITH 5/8" PISTON, 2" SCREWED CONNECTIONS BY HERSEY PRODUCTS INC. WATER TEMP. RANGE 80°F - 110°F PRESSURE RATING 150 PSI. METER SHALL COMPLY W/STANDARDS OF NEWA & AWWA.

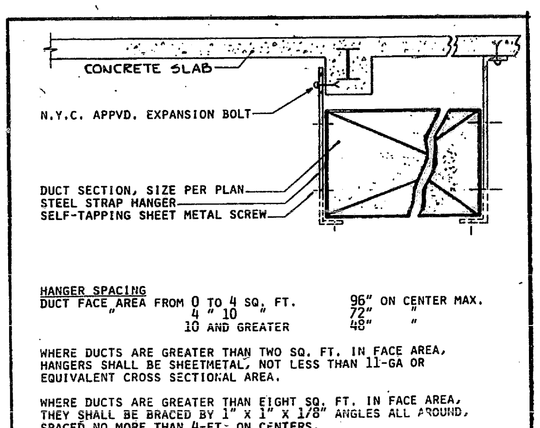
FLOW DIAGRAM

NOT TO SCALE



VERTICAL MOUNTING N.T.S.
AIR BALANCE INC. MODEL 119BL - BSA-100-65-SM

FIRE DAMPER DETAIL



HANGER SPACING

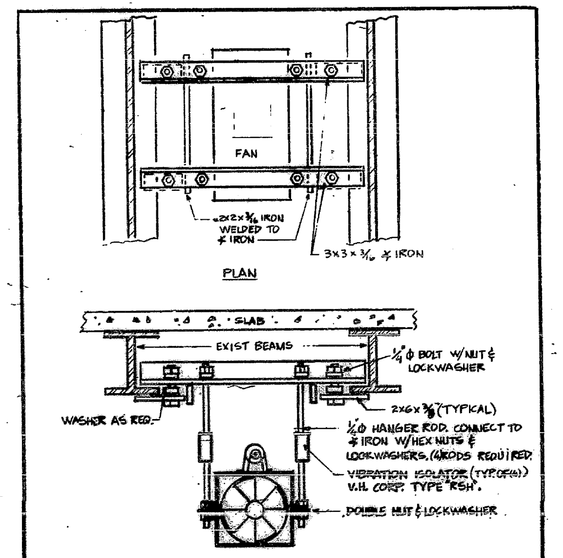
DUCT FACE AREA		
FROM 0 TO 4 SQ. FT.	96"	ON CENTER MAX.
4 " 10 "	72"	"
10 AND GREATER	48"	"

WHERE DUCTS ARE GREATER THAN TWO SQ. FT. IN FACE AREA, HANGERS SHALL BE SHEETMETAL, NOT LESS THAN 11-GA OR EQUIVALENT CROSS SECTIONAL AREA.

WHERE DUCTS ARE GREATER THAN EIGHT SQ. FT. IN FACE AREA, THEY SHALL BE BRACED BY 1" x 1" x 1/8" ANGLES ALL AROUND, SPACED NO MORE THAN 4-FT. ON CENTERS.

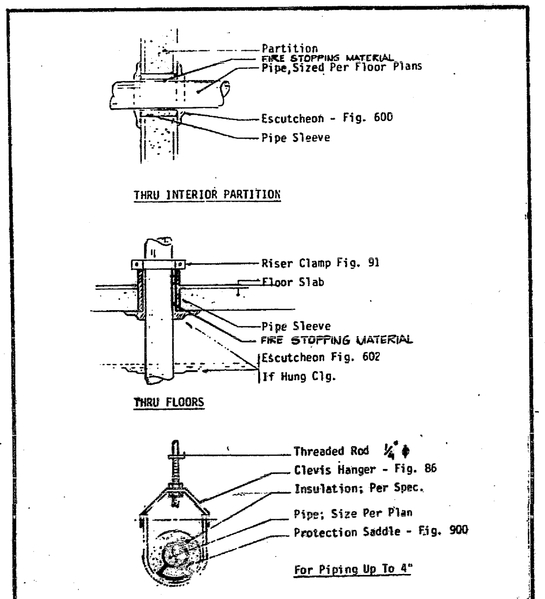
WHERE DUCT ARE OVER 48" WIDE, THE HANGERS SHALL BE BROUGHT DOWN UNDER THE DUCT SIDES 4" AND FASTENED TO THE DUCT BOTTOM.

Duct Hangers



DWG. IS NOT TO SCALE

HALON FAN HANGER DETAIL



ROD TO BE SECURED TO CLG SLAB W/ DOUBLE EXPANSION SHIELD

PIPES UNDER RAISED FLOOR SHALL BE MOUNTED ON F&S PIPE ROLLSTAND FIG. 79.

ALL FIG. NO. FROM F&S CATALOG.

PIPE HANGER PENETRATION DETAIL

HVAC SPECIFICATIONS

REQUIREMENTS

A. GENERAL

1. MATERIALS: NEW, UNUSED, BEST OF THEIR RESPECTIVE KINDS AND FREE FROM DEFECTS. BASIS OF QUALITY SHALL BE LATEST STANDARDS OF ASTM, ASA, FEDERAL SPECIFICATIONS, OR OTHER ACCEPTABLE STANDARDS.

2. THIS CONTRACTOR SHALL PAY ALL FEES, GIVE ALL NOTICES, FILE ALL NECESSARY DRAWINGS AND OBTAIN ALL PERMITS AND CERTIFICATES OF APPROVAL REQUIRED IN CONNECTION WITH ALL WORK UNDER THIS CONTRACT. HE SHALL COMPLY WITH ALL LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS AND WITH THE NATIONAL AND LOCAL ELECTRICAL CODES.

3. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK.

4. CONTRACTOR SHALL BE HEED TO HAVE EXAMINED THE SITE FOR HIS WORK BEFORE HAVING SUBMITTED HIS PROPOSAL. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR CONDITIONS FOUND DURING THE COURSE OF THE CONTRACT.

5. CONTRACTOR SHALL VERIFY ALL MEASUREMENTS AT SITE AND BE RESPONSIBLE FOR CORRECTNESS OF SAME.

6. INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED IN SECTIONS FOR MOVING THROUGH RESTRICTED SPACES.

7. CONTRACTOR SHALL COORDINATE HIS WORK WITH REFLECTED CEILING PLANS AND OTHER TRADES.

8. INSTALL ALL WORK IN SUCH A MANNER SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIRS.

9. EVERY EFFORT SHALL BE MADE TO MINIMIZE VIBRATION AND NOISE THRU CAREFUL FABRICATION AND ERECTION.

10. STORE MATERIALS IN SPACES SO DESIGNATED BY ARCHITECT/OWNER.

11. REMOVE RUBBISH FROM PREMISES AS OFTEN AS NECESSARY OR AS DIRECTED.

12. ALL CUTTING CORE DRILLING AND PATCHING IN CONNECTION WITH TRADE SHALL BE DONE BY THAT TRADE.

13. EQUIPMENT INTENDED FOR PERMANENT INSTALLATION SHALL NOT BE OPERATED FOR TEMPORARY PURPOSES.

14. FURNISH FOR EACH MOTOR, AN APPROVED STARTER WITH REQUIRED OVERLOADS AND CONTACTS FOR MOUNTING AND WIRING BY ELECTRICAL CONTRACTOR.

15. ALL EQUIPMENT TO BE STARTED-UP AND CHECKED-OUT BY CONTRACTOR WITH ASSISTANCE FROM MANUFACTURER'S PERSONNEL.

1 16. ALL WORK AND EQUIPMENT TO BE FULLY GUARANTEED FOR ONE (1) YEAR FROM THE DATE OF FINAL PAYMENT AND ACCEPTANCE. COMPRESSORS SHALL HAVE A FIVE (5) YEAR GUARANTY.

17. ALL WORK AND EQUIPMENT SHALL BE CLEANED TO THE SATISFACTION OF THE OWNER BEFORE TURNING SAME OVER TO THE OWNER.

18. SHOP DRAWINGS FOR EQUIPMENT SELECTION SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL PRIOR TO ORDERING, FABRICATION AND/OR INSTALLATION OF SAME. FOUR COPIES OF EACH SUBMITTAL FOR EQUIPMENT ARE REQUIRED: ONE (1) SEPIA REPRODUCIBLE AND (1) PRINT FOR SHEETMETAL FABRICATION DRAWINGS.

19. PROVIDE SERVICE AND OPERATING MANUAL; INCLUDE EQUIPMENT CUTS, WIRING AND CONTROL DIAGRAM, START UP AND SHUTDOWN INSTRUCTION, MAINTENANCE INSTRUCTIONS, AND PARTS LIST, ALL IN TRIPLICATE.

20. CONNECT NEW WORK TO EXISTING IN A NEAT AND APPROVED MANNER. RESTORE EXISTING WORK IN MAKING SUCH CONNECTION TO PERFRECT CONDITION.

21. INTERRUPTION OF HEATING, POWER AND AUXILIARY SYSTEMS SHALL BE COORDINATED WITH THE BUILDING AUTHORITIES AND SUCH OUTAGES SHALL OCCUR ONLY DURING PREARRANGED ACCEPTABLE TIMES. THE EXISTING BUILDING SHALL NOT BE LEFT WITHOUT USE OF HEAT, LIGHTING, POWER, TEC., EXCEPT FOR FINAL CONNECTIONS, WHICH SHALL BE PERFORMED AT A TIME CONVENIENT TO AND WITH NO ADDITIONAL EXPENSE TO THE TENANT OR LANDLORD.

22. ALL WORK IN OCCUPIED TENANT AREAS SHALL BE PERFORMED ON OTHER THAN NORMAL WORKING HOURS AS DIRECTED BY THE ENGINEER.

23. THE CONTRACTOR SHALL NOTIFY THE ENGINEER WHEN SHUTDOWN OF EXISTING SYSTEMS BECOMES NECESSARY. SHUTDOWN TIME SHALL BE KEPT TO A MINIMUM.

DUCTWORK

A. GENERAL

1. DUCTWORK SHALL BE CONSTRUCTED OF PRIME QUALITY SHEET STEEL. INSTALL ALL DUCTWORK IN COMPLETE CONFORMANCE WITH "RECOMMENDED CONSTRUCTION FOR RECTANGULAR SHEET METAL DUCTS", (LATEST ASHRAE GUIDE) AND ALL OTHER AUTHORITIES HAVING JURISDICTION.

2. DUCTWORK SHALL BE TESTED, BALANCED AND SEALED TO AN ALLOWABLE LEAKAGE OF 10%.

3. STRAP HANGERS SHALL NOT BE LESS THAN 1" X 1/8" THICK AND ATTACHED TO SIDE OF DUCT WITH SHEETMETAL SCREWS. (SEE "DUCT HANGER DETAIL").

4. FLEXIBLE DUCT CONNECTIONS SHALL BE NEOPRENE OR GLASS CLOTH. UNCLAMPED SECTION SHALL BE 4" IN LENGTH.

5. ALL ACCESS DOORS SHALL BE AS PER LATEST SMACNA STANDARDS.

6. SUPPLY DIFFUSERS, REGISTERS AND GRILLS (TITUS AS STANDARD). UNITS SHALL BE FURNISHED WITH BAKED ENAMEL FINISH: COLOR AND FRAME AS SELECTED BY ARCHITECT/OWNER.

7. SQUARE DIFFUSERS SHALL BE STEEL MODEL TDC WITH OPPOSED BLADE DAMPER AND EQUALIZING GRID.

8. SUPPLY REGISTERS SHALL BE ALUMINUM MODEL 272-FL5.

9. RETURN/EXHAUST REGISTERS SHALL BE STEEL MODEL 25-RL5.

10. PAINTING: INSIDE DUCTWORK WHERE VISIBLE THRU OUTLETS: ONE COAT OF FLAT BLACK.

11. TEST AND BALANCE AIR QUANTITIES AT ALL FANS AND AIR OUTLETS BY ANENOMETER, ANEMOTHERM, VELOMETER, OR PITOT TUBE AND DRAFT GAUGE, WHICHEVER IS APPLICABLE. AIR QUANTITIES AT AIR OUTLETS SHALL BE WITHIN 10% OF THOSE SPECIFIED.

1 12. ALL 90° ELBOWS SHALL HAVE AIRFOIL TURNING VANES.

B. TEST LOG

1. SUBMIT FOUR (4) COPIES OF A COMPLETE, TABULATED LOG OF ALL TEST READINGS INCLUDING PRESSURES, TEMPERATURES, VELOCITIES, AIR AND WATER QUANTITIES, RPM, AND ELECTRIC MOTOR VOLTAGE AND CURRENT TO ARCHITECT FOR APPROVAL.

C. INSULATION - DUCTWORK

1. CONCEALED DUCTWORK: ALL AIR CONDITIONED SUPPLY DUCTWORK SHALL BE INSULATED WITH 1½" THICK PINK WRAP TYPE IV OWENS-CORNING FIBERGLASS AS STANDARD. TAPE AND SEAL ALL SEAMS PER MANUFACTURER'S RECOMMENDATIONS. EXHAUST AIR DUCTWORK IN HUNG CEILING SHALL NOT BE INSULATED. IT SHALL CONFORM TO R.S.I.-1, PAR. 305 OF N.Y.C. BUILDING LAWS. FLAME SPREAD 25, SMOKE DEVELOPED 50.

2

D. SOUND TREATMENT

1. SOUNDLINE ALL DUCTWORK TO A DISTANCE OF 15'-0" FROM FAN DISCHARGE AND INLET. SOUNDLINING SHALL BE 1" THICK MAT FACED FIBERGLASS DUCTLINER. DUCT SIZES INDICATED SHALL BE INSIDE CLEAR DIMENSIONS. WHERE ACOUSTICAL LINING IS SPECIFIED THERMAL INSULATION IS NOT REQUIRED. IT SHALL CONFORM TO R.S.I.-1, PAR. 305 OF N.Y.C. BUILDING LAWS. FLAME SPREAD 25, SMOKE DEVELOPED 50.

2

E. FIRE DAMPERS

1. FIRE DAMPERS ARE BASED ON AIR BALANCE, MODEL #119 TYPE AL, BL, AND CL. THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S APPROVED INSTALLATION INSTRUCTIONS AND SHALL BE N.Y.C. BOARD OF STANDARDS AND APPEALS (B.S.A.), UNDERWRITERS LABORATORIES (U.L.) APPROVED AND LABELLED. DAMPERS SHALL CONFORM TO THE W.T.C. STANDARD DETAILS AND SPECIFICATIONS (PONYA)

2

PIPING

A. ARRANGEMENT AND ALIGNMENT OF PIPING

1. GROUP PIPING WHEREVER PRACTICAL, INSTALLED IN STRAIGHT PARALLEL LINES ARRANGED AND ALIGNED IN A UNIFORM DIRECT MANNER. ALL CHANGES IN DIRECTION OF PIPING SHALL BE MADE WITH FITTINGS.

2. PIPE LINES SHALL BE GUIDED, SUPPORTED AND ANCHORED IN SUCH A MANNER THAT PIPE LINES WILL NOT CREEP, SAG OR BUCKLE.

3. INSTALL PIPING CAREFULLY ALLOWING FOR PROPER ALIGNMENT, SLOPE AND EXPANSION.

4. RUN HORIZONTAL PIPING AT RIGHT ANGLES AND NOT DIAGONALLY ACROSS ROOMS AND/OR OTHER PIPING.

5. VENT AUXILLIARY COOLING WATER PIPING AT ALL HIGH POINTS.

B. TEST REQUIREMENTS (AUX. COOLING WATER)

OPERATING PRESSURE	150 PSIG
OPERATING TEMPERATURE	80F - 100F
HYDROSTATIC TEST PRESSURE	1.5 X OPERATING PRESSURE
DURATION OF TEST	2 HOURS

ISOLATE EQUIPMENT, CONTROLS INSTRUMENTS AND VALVES FROM THE PIPING SYSTEM DURING HYDROSTATIC TESTS.

C. PIPING & FITTINGS

SYSTEM	PIPE	FITTINGS
AUX. COOLING WATER	BLACK STEEL PIPE, CONFORMING TO ASTM A106 SCHEDULE #40 GRADE B	2-1/2" CAST IRON SCREWED 250 LB. CLASS
AC UNIT CONDENSATE DRAIN	COPPER ASTM B-88 HARD TEMPER TYPE (L)	WROUGHT COPPER SOLDER JOINT 5 ANSI B16.18
DOMESTIC WATER	HARD TEMPER COPPER TYPE (TP) ASTM B302	CAST BRONZE FOR BRAZING - ANSI B16.18

1

D. ACCESSORIES

1. UNIONS FOR AUXILIARY COOLING WATER SERVICE SHALL BE SIMILAR AND EQUAL TO 250 LB. CLASS, MALLEABLE IRON WITH BRONZE SEATS. GRINNELL FIGURE 554, U.L.

2. NIPPLES 6" LENGTH OR LESS, SHALL BE EXTRA HEAVY AND SHALL BE FORMED FROM MATERIAL HAVING THE SAME QUANTITIES AS THE ADJACENT PIPING. CLOSE NIPPLES SHALL NOT BE USED.

E. SOLDERED JOINTS

95-5 TIN ANTIMONY SOLDER HAVING A MELTING POINT GREATER THAN 450°F. EXCESS SOLDER SHALL BE REMOVED WHILE STILL IN A MOLTIN STATE WITH A FILLET LEFT AT THE FACE OF THE FITTING.

F. THERMOMETERS

1. THERMOMETERS FOR PIPING SHALL BE OF THE "ALL ANGLE" (UNIVERSAL), SEPARATE SOCKET, INDUSTRIAL TYPE WITH #304 STAINLESS STEEL EXTENSION NECK WELLS.

2. THE THERMOMETER FOR AUXILIARY COOLING SHALL OPERATE AT 0 - 160 F RANGE AND SHALL INCLUDE A SUFFICIENT SAFETY MARGIN AT EITHER END.

3. THERMOMETERS SHALL BE AS MANUFACTURED BY ALBERT A. WEISS, WEKSLER INSTRUMENT CO., ASHCROFT OR APPROVED EQUAL.

G. PRESSURE GAUGES

1. PRESSURE GAUGES SHALL BE OF THE BOURDON TUBE SPRING TYPE WITH 4-1/2 DIAL SIZES. GAUGES SHALL HAVE BLACK ALUMINUM CASES WITH BLACK NUMBERS ON WHITE BACKGROUND. THE GAUGES SHALL BE AS MANUFACTURED BY ALBERT A. WEISS, WEKSLER INSTRUMENT CO., ASHCROFT OR APPROVED EQUAL.

2. THE PRESSURE RANGE FOR THE AUXILIARY COOLING, SHALL BE 0°F - 300°F PSI AND THE BOURDON TUBE SHALL BE BRONZE.

H. STRAINERS

STRAINERS SHALL BE SIMILAR AND EQUAL TO THOSE MANUFACTURED BY MUELLER STEAM SPECIALTY CO. SCREWED "Y" STRAINERS FOR PIPES 2" AND SMALLER SHALL BE 250 LB. NO. 11. THE SCREENS FOR THE STRAINERS SHALL BE STAINLESS STEEL. STRAINERS SHALL BE PROVIDED WITH CAPPED BLOWDOWN VALVES.

I. SLEEVES AND ESCUTCHEONS

EXPOSED PIPING PASSING THROUGH WALLS AND CEILING SHALL BE FITTED WITH CHROMIUM PLATED CAST BRASS ESCUTCHEONS WITH FASTENING SET SCREWS SIMILAR AND EQUAL TO FEE & MASON MANUFACTURING CO., F & S MANUFACTURING CO. OR RITTER PATTERN AND CASTING CO.

1 SLEEVES SHALL BE PROVIDED AS PER DETAIL.

J. PIPE SUPPORTS AND HANGERS

1. ALL SUPPORTS AND PARTS SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE ANSI CODE FOR PRESSURE PIPING B31.1 AND MSS STANDARD PRACTICE SP-58.

2. HANGERS SHALL BE MANUFACTURED BY GRINNEL CO., CENTRAL IRON, FEE AND MASON, BLAWKNOX CO. OR AN APPROVED EQUAL.

3. PIPE HANGERS, RODS, INSERTS AND CLAMPS SHALL BE THOSE APPROVED FOR THEIR RESPECTIVE USES BY THE UNDERWRITERS' LABORATORIES, INC.

4. UNLESS OTHERWISE SPECIFICALLY APPROVED, HANGER SIZE AND SPACING SHALL BE:

PIPE SIZES	MAX. HANGER SPACING	MINIMUM ROD SIZES
4" to 1"	9 ft. o.c.	3/8"
1¼" to 2½"	9 ft. o.c.	1/2"

1 5. ALL FERROUS HANGERS & SUPPORTS SHALL BE PAINTED WITH (1) COAT OF RED LEAD & OIL.

K. VALVES

TYPE	SIZE	PRESSURE	JENKINS FIG. NO.	CRANE FIG. NO.	STOCKHAM FIG. NO.
GATE	UP TO 3"	125 PSI	47U	428-UB	B-105
GATE	UP TO 3"	150 PSI	49U	431	B-128

1

2. BALANCING VALVES SHALL BE NON-LUBRICATING TYPE PLUG VALVE WITH POSITION INDICATOR, MEMORY STOP, 150 LB. VALVES SHALL BE AS MANUFACTURED BY HOMESTEAD INDUSTRIES OR APPROVED EQUAL.

3. DOMESTIC WATER & DRAIN

(A) GATE VALVES: FAIRBANKS FIG. 0250-FB

(B) CHECK VALVES: FAIRBANKS FIG. 0640-FB

* SPECIFICATIONS CONTINUE ON DWG. H-3

ZCA/TAA NO. 2321
DATE APPROVED 9/14/82

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REVISIONS		
NO.	DESCRIPTION	DATE
1	GSC CLARIFICATION	9-13-82
2	TO COMPLY WITH PORT AUTHORITY COMMENTS	9-13-82

CANTOR, FITZGERALD SECURITIES CORP.
ONE WORLD TRADE CENTER
NEW YORK, N.Y.

PROJECT TITLE NEW COMPUTER ROOM-2
FLOOR 104TH
DRAWING TITLE DETAILS AND SPECIFICATIONS

DATE 15-782 | JOB NUMBER 7002
DRAWN | SCALE: G.N. | NONE
DRAWING NUMBER H-2